Development and validation of an analytical methodology for the detection and quantification of amoxicillin in meat by liquid chromatography tandem mass spectrometry

Andreia Freitas[1], Jorge Barbosa[1], Fernando Ramos[2*]

[1]LNIV, Laboratório Nacional de Investigação Veterinária, Estrada de Benfica, 701
1549-011 Lisboa – Portugal
[2]Health Surveilance Group, CEF - Center for Pharmaceutical Studies, Health Sciences Campus
Bromatology Lab, Pharmacy Faculty, Coimbra University, Azinhaga de Santa Comba,
3000-548 Coimbra, Portugal
*email: framos@ff.uc.pt

The development and validation of an analytical methodology based on liquid chromatography tandem mass spectrometry (LC-MS/MS), was set up for the detection and quantification of amoxicillin in meat. The method consists of a simple extraction with phosphate buffer (pH 8) with sodium chloride followed by a sample clean-up with OASIS® HLB cartridges. During validation according to the established European Union requirements, the decision limit (CCα) of 56 μg/kg and the capacity of detection (CCβ) of 67 μg/kg for amoxicillin were obtained

A stability study was conducted under pH and temperature variations, with the goal of better understand amoxicillin degradation and characterize its main degradation products (amoxicilloic acid and amoxicillin diketopiperazine).

Keywords: Amoxicillin, residues, meat, LC-MS/MS